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GROUP 3600

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In the claims:

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1. (Currently Amended) In a ball nut having at least one internal bearing race with a first end and a second end, and a crossover passage for connecting the first end and the second end to form a continuous recirculating path for a plurality of ball bearings, the improvement comprising:

at least two eyelets, each eyelet having a helix passage for receiving [a] the plurality of ball bearings formed in a flange end and [a] the crossover passage formed in the flange end, the crossover passage in communication with the helix passage for returning the plurality of ball bearings, wherein assembling the two eyelets in flange-to-flange relationship with respect to one another defines at least one raceway having a single recirculating rotational path for receiving the plurality of ball bearings.

2. (Original) The ball nut of claim 1 further comprising:
the assembled eyelets overmolded to provide a unitary ball nut.

3. (Original) The ball nut of claim 1 wherein the eyelets are identical to one another.

4. (Original) The ball nut of claim 1 further comprising:
the eyelet drawn and coined to form the helix passage and crossover passage in the flange end of the eyelet.

5. (Original) The ball nut of claim 1 further comprising:
a lock member for temporarily holding the two eyelets with respect to one another.

6. (Original) The ball nut of claim 5 further comprising:
at least one tab formed on the flange end of the eyelet to define the lock member.

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7. (Original) The ball nut of claim 1 further comprising:
the plurality of ball bearings inserted within the helix passage and the
crossover passage during assembly.

8. (Previously Presented) The ball nut of claim 1 further comprising:
a diverter extending with respect to the helix passage to direct ball
bearings into the crossover passage.

9. (Original) The ball nut of claim 1 wherein the eyelet is formed of a
metal material selected from a group including steel, hardened steel, melonited steel,
heat treated steel, stainless steel, spherodized stainless steel, annealed stainless steel,
and heat treated stainless steel.

10. (Original) The ball nut of claim 1 further comprising:
the eyelet hardened to approximately $R_c 62$.

11. (Original) In a ball nut having at least one internal bearing race
with a first end and a second end, and a crossover passage for connecting the first end
and the second end to form a continuous recirculating path for a plurality of ball
bearings, the improvement comprising:
an elongate, generally cylindrical-shaped, metal injection molded ball
nut body with a helix passage for receiving a plurality of ball bearings.

12. (Original) The ball nut of claim 11 further comprising:
the ball nut body having a slot defined through a portion of the
circumference extending along an entire longitudinal length of the ball nut body, such
that the ball nut body has a generally C-shaped cross-section along the entire
longitudinal length; and
a side insert formed engageable with the slot in the ball nut body, the
side insert having ball-stops and a crossover passage defined therein, and the side

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insert assembled with respect to the ball nut body to define at least one raceway having a single recirculating rotational path for receiving the plurality of ball bearings.

13. (Original) The ball nut of claim 12 wherein the side insert is formed of plastic.

14. (Original) The ball nut of claim 11 further comprising:
a plurality of individual raceways having separate recirculating rotational paths disposed parallel with respect to one another for receiving the plurality of ball bearings.

15. (Original) The ball nut of claim 11 wherein the ball nut body is injection molded of stainless steel.

16. (Original) The ball nut of claim 11 further comprising:
the ball nut body carburized to a hardness of approximately 58 R_c.

17. (Original) The ball nut of claim 11 further comprising:
a ball-engaging surface finish of approximately 30-40 μ inches.

18. (Original) In a ball nut having at least one internal bearing race with a first end and a second end, and a crossover passage for connecting the first end and the second end to form a continuous recirculating path for a plurality of ball bearings, the improvement comprising:

a flat metal strip having at least one groove formed therein for receiving a plurality of ball bearings, the strip rolled to a predetermined diameter and lead with the at least one groove facing radially inward; and

a carrier for receiving the rolled strip inserted therein, the carrier having a crossover passage formed therein to define at least one raceway having at least one recirculating rotational path for receiving the plurality of ball bearings.

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19. (Original) The ball nut of claim 18 further comprising:
the flat metal strip having a coined groove.
20. (Original) The ball nut of claim 18 further comprising:
the flat metal strip having a through rolled groove.
21. (Original) The ball nut of claim 18 wherein the flat metal strip is
formed of 410 martensitic stainless steel.
22. (Original) The ball nut of claim 18 further comprising:
the carrier overmolded after insertion of the rolled strip.
23. (Original) The ball nut of claim 18 further comprising:
the strip having a roll formed groove therein defining a race for
receiving the plurality of ball bearings, the strip formed of a constant thickness metal
material.
24. (Original) The ball nut of claim 23 further comprising:
the strip hardened after roll forming the groove and rolled to the
predetermined diameter and lead.
25. (Original) The ball nut of claim 18 further comprising:
the flat metal strip having a stamped groove and a stamped crossover
passage therein for receiving a plurality of ball bearings, the crossover passage in
communication with the groove for returning the plurality of ball bearings from one
end of the groove to an opposite end.
26. (Original) The ball nut of claim 25 further comprising:
the stamped metal strip hardened after rolling to the predetermined
diameter and lead.

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27. (Presently Amended) A ball nut having at least one internal bearing race with a first end and a second end, and at least one recirculating crossover passage for connecting the first end with the second end to form a continuous recirculating path for a plurality of ball bearings, comprising:

means for forming an eyelet with a helix passage for receiving [a] the plurality of ball bearings in a flange end;

means for defining a portion of [a] the crossover passage in the flange end, the crossover passage in communication with the helix passage for returning the plurality of ball bearings; and

means for assembling two eyelets in flange-to-flange relationship with respect to one another to define at least one raceway having a single recirculating rotational path passing through aligned portions of the crossover passage formed by the flange-to-flange relationship of the two eyelets for receiving the plurality of ball bearings.

28. (Previously Presented) The ball nut of claim 27 further comprising:
means for over molding the assembled eyelets to provide a unitary ball nut.

29. (Previously Presented) The ball nut of claim 27 wherein the eyelets are identical to one another.

30. (Previously Presented) The ball nut of claim 27 wherein the means for forming further comprises:

means for drawing an eyelet; and

means for coining the helix passage and crossover passage in the flange end of the eyelet.

31. (Previously Presented) The ball nut of claim 27 wherein the means for assembling further comprises:

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means for temporarily holding the two eyelets with respect to one another with a lock member.

32. (Previously Presented) The ball nut of claim 31 wherein the means for forming further comprises:

means for forming at least one tab on the flange end of the eyelet to define the lock member.

33. (Previously Presented) The ball nut of claim 27 wherein the means for assembling further comprises:

means for inserting the plurality of ball bearings within the helix passage and the crossover passage.

34. (Previously Presented) The ball nut of claim 27 further comprising:
means for providing a punch in the helix passage to direct ball bearings into the crossover passage.

35. (Previously Presented) The ball nut of claim 27 wherein the eyelet is formed of a metal material selected from a group including steel, hardened steel, melonited steel, heat treated steel, stainless steel, spherodized stainless steel, annealed stainless steel, and heat treated stainless steel.

36. (Previously Presented) The ball nut of claim 27 further comprising:
means for hardening the eyelet to approximately R_c 62.

37. (Presently Amended) In a ball nut having at least one internal bearing race with a first end and a second end, and a crossover passage for connecting the first end and the second end to form a continuous recirculating path for a plurality of ball bearings, the improvement comprising:

at least two eyelets, each eyelet having a portion of a helix passage for receiving [a] the plurality of ball bearings formed in a face of a flange end and a

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portion of [a] the crossover passage formed in the face of the flange end, the crossover passage in communication with the helix passage for returning the plurality of ball bearings, the two eyelets operably engageable in face-to-face, flange-to-flange relationship with respect to one another to define one raceway having a single recirculating rotational path passing through aligned portions of the crossover passage formed by the face-to-face, flange-to-flange relationship of the two eyelets for receiving the plurality of ball bearings.

38. (Presently Amended) In a ball nut having at least one internal bearing race with a first end and a second end, and a crossover passage for connecting the first end and the second end to form a continuous recirculating path for a plurality of ball bearings, the improvement comprising:

a ball nut body with at least one helix passage for receiving [a] the plurality of ball bearings, [a] the crossover passage formed to define an individual raceway for each helix passage, each raceway having a separate, single orbit, recirculating rotational path, the ball nut body having [an] elongate, generally cylindrical-shaped, ~~metal injection molded~~ body portions with a common longitudinal axis and at least one parting line extending transversely with respect to the common longitudinal axis between adjacent body portions.

39. (Cancelled).

40. (Presently Amended) The ball nut of claim 38 further comprising:
means for forming [a] the helical portion of each recirculating path to extend less than an entire circumference of an interior of the ball nut body from [a] the first end to [a] the second end; and

means for forming [a] the crossover passage portion of each recirculating path to extend in communication between the first and the second end of the corresponding helical portion.

41. (Presently Amended) The ball nut of claim 40 further comprising:

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means for angularly offsetting each crossover passage portion with respect to [a] the longitudinally adjacent crossover passage portion.

42. (Presently Amended) The ball nut of claim 38 further comprising:

[a] the helical portion of each recirculating path formed to extend less than an entire circumference of an interior of the ball nut body from [a] the first end to [a] the second end; and

[a] the crossover passage portion of each recirculating path to extend formed in communication between the first and the second end of the corresponding helical portion.

43. (Presently Amended) The ball nut of claim 42 further comprising:

each crossover passage portion angularly offset with respect to [a] the longitudinally adjacent crossover passage portion.

44. (Presently Amended) A ball nut having at least one internal bearing race with a first end and a second end, and at least one recirculating crossover passage for connecting the first end with the second end to form a continuous recirculating path for a plurality of ball bearings, comprising:

a first stamped part with a first portion of a groove and a first portion of [a] the crossover passage in a first face of a first flange region from a flat metal strip for receiving [a] the plurality of ball bearings;

a second stamped part with a second portion of the groove and a second portion of the crossover passage in a second face of a second flange region in the flat metal strip, the second portions of the groove and crossover passage of the second part operably positionable in communication with the first portions of the groove and crossover passage of the first part for returning the plurality of ball bearings from one end of the groove to an opposite end; and

the first and second stamped parts assembled in face-to-face, flange-to-flange relationship with respect to one another to define a ball nut with a continuous recirculating path for a plurality of ball bearings.

45. (Previously Presented) The ball nut of claim 44 wherein the first and second stamped parts are identical to one another.

46. (Previously Presented) The ball nut of claim 44 further comprising: the first and second stamped parts are hardened parts.

47. (Presently Amended) In a ball nut having at least one internal bearing race with a first end and a second end, and a crossover passage for connecting the first end and the second end to form a continuous recirculating path for a plurality of ball bearings, the improvement comprising:

a first stamped part having a first portion of a groove and a first portion of [a] the crossover passage formed in a first face of a first flange for receiving [a] the plurality of ball bearings;

a second stamped part having a second portion of the groove and a second portion of the crossover passage formed in a second face of a second flange, the second part operably positionable in face-to-face, flange-to-flange communication with the first part for returning the plurality of ball bearings from one end of the groove to an opposite end; and

means for connecting the first and second parts in face-to-face, flange-to-flange relationship with respect to one another to define a ball nut with a continuous recirculating path for a plurality of ball bearings.
